

Application No. 10/711,888
Technology Center 1775
Amendment dated January 24, 2007
Reply to Office Action dated August 29, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently amended): An airfoil of a rotating component of a turbomachine, the airfoil having a coating system comprising:

an underlayer overlying ~~a metallic coating on~~ a surface of the airfoil, the underlayer having a composition ~~metallic coating~~ comprising metallic particles dispersed in a matrix, the matrix having a composition selected from the group consisting of metals, intermetallics, and mixtures thereof, ~~a metallic~~ and/or intermetallic composition, at least some ~~of the metallic particles being~~ more ductile than the matrix and having a composition ~~having compositions~~ containing silver and optionally tin; and

an overlayer ~~a ceramic coating~~ overlying the underlayer, the overlayer having a ceramic composition; ~~metallic coating;~~ wherein the underlayer ~~metallic coating~~ is sufficiently thick to damp vibration in the airfoil.

Application No. 10/711,888
Technology Center 1775
Amendment dated January 24, 2007
Reply to Office Action dated August 29, 2006

Claim 2 (Currently amended): The airfoil according to claim 1,
wherein the composition of the matrix consists essentially of chromium and
~~chromium-based intermetallic phases of formed by interaction between~~
chromium and at least one of silver and tin. ~~tin in the metallic coating.~~

Claim 3 (Currently amended): The airfoil according to claim 1,
wherein each of the metallic particles has a composition selected have
~~compositions chosen from the group consisting of alloys of silver, SnAg, and~~
SnTiAg.

Claim 4 (Currently amended): The airfoil according to claim 1,
wherein the underlayer and the metallic particles thereof and the matrix thereof
are metallic coating is substantially free of tin.

Claim 5 (Currently amended): The airfoil according to claim 1,
wherein the composition of the underlayer metallic coating further comprises
oxides selected chosen from the group consisting of oxides formed by
oxidation of elements of the metallic particles, oxides formed by oxidation of
elements the metallic composition of the matrix, and the composition of the
overlayer oxides from the ceramic coating.

Application No. 10/711,888
Technology Center 1775
Amendment dated January 24, 2007
Reply to Office Action dated August 29, 2006

Claim 6 (Currently amended): The airfoil according to claim 1,
wherein the metallic particles have nominal dimensions of less than one
millimeter. ~~micrometer.~~

Claim 7 (Original): The airfoil according to claim 6, wherein at least
some of the metallic particles have nominal dimensions of less than one
micrometer.

Claim 8 (Currently amended): The airfoil according to claim 1,
wherein the composition of the overlayer comprises ~~ceramic coating has a~~
~~composition comprising~~ magnesia.

Claim 9 (Currently amended): The airfoil according to claim 1,
wherein a compositionally graded region is present between the underlayer
~~metallic coating~~ and the overlayer and comprises a mixture of the
compositions of the underlayer and the overlayer. ~~ceramic coating that~~
~~contains material of the metallic coating and material of the ceramic coating.~~

Claim 10 (Currently amended): The airfoil according to claim 1,
wherein the underlayer ~~metallic coating~~ and the overlayer ~~ceramic coating~~

Application No. 10/711,888
Technology Center 1775
Amendment dated January 24, 2007
Reply to Office Action dated August 29, 2006

are substantially discrete layers that contact each other at ~~separated by~~ a distinct interface.

Claim 11 (Currently amended): The airfoil according to claim 1,
further comprising a metallic bond coat between and contacting ~~wherein the~~ surface of the airfoil and the underlayer to promote ~~on which the metallic~~ coating lies is defined by a metallic bond coat that promotes adhesion of the underlayer metallic coating to the airfoil.

Claim 12 (Currently amended): The airfoil according to claim 11,
~~claim 10,~~ wherein the metallic bond coat is predominantly hafnium, silver, or a mixture thereof.

Claim 13 (Currently amended): A gas turbine engine blade formed of a titanium alloy and having a coating system comprising:
an underlayer overlying a metallic coating on a surface of the blade, the underlayer having a composition ~~metallic coating~~ comprising metallic particles dispersed in a matrix, the matrix having a composition selected from the group consisting of metals, intermetallics, and mixtures thereof, ~~a metallic~~ and/or ~~intermetallic~~ composition, at least some of the metallic particles having

Application No. 10/711,888
Technology Center 1775
Amendment dated January 24, 2007
Reply to Office Action dated August 29, 2006

nominal dimensions of less than one micrometer, each of the metallic particles having a composition compositions containing silver, the matrix having a composition consisting essentially of chromium and chromium-based intermetallics; intermetallic; and
an overlayer -a ceramic coating- overlying ~~on a surface of the underlayer, the overlayer having a ceramic composition; -metallic coating;~~
wherein the underlayer -metallic coating- is sufficiently thick to damp vibration in the blade.

Claim 14 (Currently amended): The gas turbine engine blade according to claim 13, wherein the composition of the metallic particles is selected ~~the metallic particles have compositions chosen~~ from the group consisting of alloys of silver, SnAg, and SnTiAg.

Claim 15 (Currently amended): The gas turbine engine blade according to claim 13, wherein the underlayer and the metallic particles thereof and the matrix thereof are ~~-metallic coating is~~ substantially free of tin.

Claim 16 (Currently amended): The gas turbine engine blade according to claim 13, wherein the composition of the underlayer -metallic

Application No. 10/711,888
Technology Center 1775
Amendment dated January 24, 2007
Reply to Office Action dated August 29, 2006

coating further comprises oxides selected -chosen- from the group consisting of oxides ~~formed by oxidation~~ of elements of the metallic particles, oxides ~~formed by oxidation of elements~~ ~~the metallic composition~~ of the matrix, and the composition of the overlayer. ~~-oxides from the ceramic coating-~~

Claim 17 (Original): The gas turbine engine blade according to claim 13, wherein all of the metallic particles have nominal dimensions of less than one micrometer.

Claim 18 (Currently amended): The gas turbine engine blade according to claim 13, wherein the composition of the overlayer ~~-ceramic coating-~~ consists essentially of magnesia.

Claim 19 (Currently amended): The gas turbine engine blade according to claim 13, wherein a compositionally graded region is present between the underlayer ~~-metallic coating-~~ and the overlayer ~~and comprises a mixture of the compositions of the underlayer and the overlayer~~ ~~-ceramic coating that contains material of the metallic coating and material of the ceramic coating-~~.

Application No. 10/711,888
Technology Center 1775
Amendment dated January 24, 2007
Reply to Office Action dated August 29, 2006

Claim 20 (Currently amended): The gas turbine engine blade according to claim 13, wherein the underlayer -metallic coating- and the overlayer -ceramic coating- are substantially discrete layers that contact each other at -separated by- a distinct interface.

Claim 21 (Currently amended): The gas turbine engine blade according to claim 13, further comprising a metallic bond coat between and contacting -wherein- the surface of the blade and the underlayer, the bond coat consisting -on which the metallic coating lies is defined by a metallic bond coat that consists- essentially of hafnium, optionally silver, and up to 25 weight percent of constituents that diffused from the underlayer -metallic coating- into the bond coat, the bond coat promoting adhesion of the underlayer -metallic coating- to the blade.

Claims 22 through 36 (Canceled)